Musculoskeletal Health

Guideline: Individuals at risk for musculoskeletal problems should be identified, evaluated, and receive appropriate treatment and follow-up care.

The following Guideline is intended to help physicians, nurses, and others involved in clinical decision-making for individuals served by SCDDSN by describing the recommended course of action for identifying and treating people at risk for musculoskeletal health problems. As much as possible, the recommendations reflect the strength of evidence and magnitude of net benefit (benefits minus harms) as reported by the U.S. Preventive Services Task Force, the National Cancer Institute, and other nationally recognized health organizations. Decisions about screening for each individual should be based on clinical history, assessment, and other factors unique to the individual. When, because of behavioral or physical conditions, it would be necessary to use conscious sedation or general anesthesia to complete screening procedures, screenings should be completed at the discretion of the primary care prescriber after a risk/benefit analysis has been completed.

DEFINITION:

Primary care prescribers: Physicians, nurse practitioners, and physician's assistants who provide primary care services and are authorized to prescribe medications and treatments for people on their assigned caseloads.

Individual's record: A permanent legal document that provides a comprehensive account of information about the individual's health care status.

Osteoporosis: A skeletal disorder marked by reduced bone strength that predisposes a person to an increased risk of fractures.

RATIONALE:

1. People living in long-term care facilities are at high risk for fracture. Most have low bone mass density (BMD) and a high prevalence for other risk factors for fracture.[1]
2. People with developmental disabilities may have a much higher incidence of musculo-skeletal problems than the general population.
3. Musculoskeletal problems may be due to non-ambulatory status, genetic anomalies or syndromes, and/or have neurological impairments.
4. Early identification, evaluation, and treatment may minimize subsequent morbidity and mortality.

EXPECTED OUTCOMES:

1. Physical examinations should include assessment for conditions such as scoliosis, muscular weakness, and muscle contracture.
   a. Examinations should occur annually or more frequently when indicated.
   b. Identification of such conditions should be documented by the primary care prescriber as part of the medical history and physical.
2. When orthopedic-related conditions are identified, appropriate evaluation by an orthopedist and/or physical therapist should be completed.
   a. Results of the orthopedic and/or physical therapy consultation will be reviewed by the primary care prescriber and maintained in the individual's record.
   b. In the event that recommendations made by the consultant are not followed, the primary care prescriber will document the rationale for the decision in the medical progress notes.

Expected Outcomes cont'd

3. Measures to prevent osteoporosis should be taken whenever possible. Prevention

includes:

a. A balanced diet rich in calcium and Vitamin D [2]
   - 1000 mg to 1300 mg of calcium is needed daily. Calcium supplements may be needed.
   - Vitamin D helps absorb calcium. Sources of vitamin D are direct exposure to sunlight and diet. A daily intake between 400 and 800 IU is recommended.

b. Weight-bearing exercise
   - walking, jogging, dancing, stair-climbing, racquet sports, and hiking are good weight-bearing exercises.
   - Individuals who use a wheelchair and cannot bear weight should be referred to Physical Therapy. Resistive exercises for the upper body as well as passive resistive exercises for the lower extremities may be used to achieve exercise goals.

c. Avoidance of smoking and alcohol

d. Bone density testing. Bone Mineral Density test (BMD) is used to:
   - diagnose osteoporosis,
   - determine the risk for future fracture,
   - determine the need for medication to help maintain bone mass.

e. Taking medications to slow or stop bone loss, increase bone density, and reduce fracture risk. (See Table below)

Medications Approved by FDA for Prevention and Treatment of Postmenopausal Osteoporosis [3]

Drug	Prevention	Treatment	Women	Men
Alendronate (Fosamax®)	X	X	X [c]	X [c]
Raloxifene (Evista®)[a]	X	X	X	
Risedronate (Actonel®)	X	X	X [c]	X [c]
Teriparatide (Forteo®)		X	X	X [d]
Estrogen/Hormone Therapy (ET/HT) [b]	X		X	
Calcitonin (Calcimar®)		X	X	

[a] Evista® is contraindicated for people who are non-ambulatory.

[b] ET taken alone can increase risk of endometrial cancer; prescribe with HT for those women who have not had hysterectomy.
HT (Prempro®) is associated with modest increase in risk of breast cancer, stroke, heart attack.
ET is associated with an increase risk of stroke and maybe associated with an increase in risk of ovarian cancer.

[c] Also approved for use for glucocorticoid-induced osteoporosis.

[d] Approved for those at risk for fracture.

4. Women aged 65 and older should be screened routinely for osteoporosis. Routine screening should begin at age 60 for women at increased risk for osteoporotic fractures.[4]
5. Appropriate education should be provided to direct care providers regarding transfer and handling of individuals at risk for osteoporosis. All staff should be aware that people who are non-ambulatory are at high risk for fractures. (See section on Risk Factors)
6. A Physical Management Program should be developed for each person with mobility

impairment, nutritional problems, or other physical limitations.

a. The program should be developed by the interdisciplinary team and incorporated into the Single Plan.
b. The plan should be incorporated into the person's daily routine.
c. The program should include strategies for positioning and transfer that decrease the possibility of fracture.

7. Custom seating systems should be provided to non-ambulatory individuals.
   a. Custom seating systems should be designed and crafted to meet the individual needs of each person.
   b. Custom seating systems should be reviewed periodically for modifications.
8. Everyone who has difficulty in performing activities of daily living should be provided with appropriate adaptive equipment to maximize independence.
9. An interdisciplinary approach should be used in developing and implementing strategies to meet the musculoskeletal needs of the individual. Active participation of disciplines such as physical and occupational therapy is expected.
10. The evaluation and management of suspected fractures is the responsibility of the primary care prescriber. Clinical findings suggestive of broken bones (pain, swelling, deformity) should be investigated with x-ray examination in a timely manner.
    a. If necessary, the individual will be referred to an orthopedist, or other appropriate practitioner (e.g., Ear, Nose and Throat specialist).
    b. Suspected fractures should be viewed as emergencies and receive immediate evaluation.
    c. Depending on the circumstances, ambulance transportation to the hospital x-ray or emergency department may be indicated.
    d. In the event that a fracture occurs, the interdisciplinary team should convene to develop a strategy to decrease the likelihood of fractures in the future. The physical therapist and/or occupational therapist should make recommendations regarding proper positioning and transfer techniques. For example, the use of a mechanical lift may be recommended to transfer a person rather than a manual two person lift.

Risk Factors [5]

Risk Factors that cannot be changed:

1. ***Gender***: Women are at higher risk due to changes in bone tissue and bone mass involved with menopause.
2. ***Age*****:** Risk increases with age.
3. ***Body Size***: Small, thin-boned women are at greatest risk.
4. ***Ethnicity***: Caucasian and Asian women are at highest risk. African American and Latino women have lower but significant risk.
5. ***Family History***: People whose parents have a history of fractures also seem to have reduced bone mass and may be at risk for fractures.

Risk factors that can be changed:

1. ***Sex hormones:***
   - Abnormal absence of menstrual periods (amenorrhea)
   - Low estrogen level (menopause)

- Low testosterone level in men

2. ***Anorexia***: A lifetime diet low in calcium and Vitamin D
3. ***Medications***: Certain medications may damage bones and cause bone loss. [6]
   - Glucocorticoids
   - Anticonvulsants
   - Excessive thyroid hormone
   - Antacids containing aluminum
   - Gonadotropin releasing hormones (GnRH)
   - Methotrexate (for cancer treatment)
   - Cyclosporine A (an immunosuppressive drug)
   - Heparin
   - Cholestyramine (to control blood cholesterol levels)
4. ***Inactive lifestyle or extended bedrest***
5. ***Cigarette smoking***
6. ***Excessive Use of Alcohol***

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